

What is claimed is:

1. A method for characterizing a circuit at a hardware level description, comprising the steps of:

creating a behavioral level description of said circuit;

generating symbolic equations for components of said behavioral level description; and

partitioning said behavioral level description by inserting a marker component into said behavioral level description of said circuit to simplify subsequent processing used to provide equivalence between said behavioral and hardware level descriptions.

2. The method of claim 1 further comprising the step of back-substituting in said symbolic equations until output variables are expressed in terms of input variables that determine said output variables.

3. The method of claim 1 further comprising the steps of transforming said behavioral level description to produce symbolic and numeric files for compilation to gates and proof of functionality.

4. The method of claim 1 further comprising the step of defining said marker component using a unique symbolic name.

5. The method of claim 4 further comprising the step of using current time counts of each clock cycle to compute an index for said marker component.

6. A method for characterizing a circuit at a hardware level description, comprising the steps of:

creating a behavioral level description of said circuit;

generating symbolic equations for components of said behavioral level description;

partitioning said behavioral level description by inserting a marker component into said behavioral level description to simplify subsequent processing used to prove equivalence of said behavioral and hardware level descriptions; and

defining said marker component using a unique symbolic name.

7. The method of claim 6 further comprising the steps of:

keeping a running count of time during a circuit simulation; and
computing an index.

8. The method of claim 7 further comprising the steps of:

generating an output string; and
printing said output string to an equation file.

9. A method for characterizing a circuit at a hardware level description, comprising the steps of:

creating a behavioral level description of a circuit including a plurality of components;

partitioning said behavioral level description by inserting a marker component into said behavioral level description to simplify subsequent processing used to prove equivalence between said behavioral and hardware level descriptions and to create a modified behavioral level description; and

constructing symbolic hardware description language code from said modified behavioral level description.

10. The method of claim 9 further comprising the step of constructing symbolic C code from said modified behavioral level description.

11. The method of claim 10 further comprising the step of confirming that said C code is functionally equivalent to said hardware description language code.

12. The method of claim 11 further comprising the step of constructing numeric C code from said modified behavioral level description.

13. The method of claim 12 further comprising the step of confirming that said numeric C code is functionally equivalent to said symbolic C code.

14. The method of claim 13 further comprising the step of confirming that said numeric C code is functionally equivalent to said symbolic hardware description language code.